

Patent Claims:

1. Arrangement for the illumination/irradiation of a human eye, particularly of photosensitive, optically active plastics implanted in the eye, comprising an illumination unit, an optical imaging system (4), an evaluating unit, a central control unit (6), and an output unit (7), wherein the illumination unit generates an illumination which is variable with respect to time and/or space.
2. Arrangement for the illumination/irradiation of a human eye according to claim 1, wherein the illumination unit comprises an illumination source (2) and an optoelectronic component (3).
3. Arrangement for the illumination/irradiation of a human eye according to at least one of the preceding claims, wherein a microdisplay or a microscanner mirror is used as optoelectronic component (3) which is controllable with respect to light transmission, light reflection or light emission.
4. Arrangement for the illumination/irradiation of a human eye according to at least one of the preceding claims, wherein the central control unit (6) is used for entering, acquiring, processing and storing data and has a user surface (9) and an interface (8).
5. Arrangement for the illumination/irradiation of a human eye according to at least one of the preceding claims, wherein the evaluating unit comprises an image-recording and image-processing unit.
6. Arrangement for the illumination/irradiation of a human eye according to at least one of the preceding claims, wherein a monitor, a printer and/or a HMD (head mounted display) are used as output unit (7) for the visualization and output of data.
7. Arrangement for the illumination/irradiation of a human eye according to at least one of the preceding claims, wherein the optical imaging system (4) has an adjustable numerical aperture and/or a variable back focus or focal length for sharp imaging of the illumination pattern in different planes.

8. Arrangement for the illumination/irradiation of a human eye according to at least one of the preceding claims, wherein a self-luminous array is used instead of the illumination unit.

9. Arrangement for the illumination/irradiation of a human eye according to at least one of the preceding claims, wherein an eyetracker unit is provided and comprises a camera and a preferably infrared illumination which is coupled in, for example, by means of a beam splitter.

10. Arrangement for the illumination/irradiation of a human eye according to at least one of the preceding claims, wherein a fixating mark is additionally projected on the eye to be treated or on the other eye which is not to be treated, this fixating mark being formed as a blinking light mark which is presented optically from infinity and/or is adjustable to the refraction state of the patient.

11. Arrangement for the illumination/irradiation of a human eye according to at least one of the preceding claims, wherein the arrangement is used for the illumination of photosensitive plastics already implanted in the eye, in particular intercorneal rings.

12. Method for the illumination/irradiation of a human eye, particularly when operating an arrangement according to at least one of the preceding claims, comprising an illumination unit, an optical imaging system (4), an evaluating unit, a central control unit (6), and an output unit (7), wherein the illumination unit generates an illumination which is variable with respect to time and/or space.

13. Method for the illumination/irradiation of a human eye according to at least one of the preceding claims, wherein the result data which have been determined beforehand are entered manually (9) or by transferring the data via the existing interface (8) or through a decision by the arrangement itself.

14. Method for the illumination/irradiation of a human eye according to at least one of the preceding claims, wherein the irradiation pattern generated by the illumination unit comprising an illumination source (2) and the optoelectronic component (3) is imaged by the imaging system (4) in a freely adjustable object plane.

15. Method for the illumination/irradiation of a human eye according to at least one of the preceding claims, wherein an automatic image evaluation and/or online control are/is made possible based on the measured values determined by the evaluating unit.

16. Method for the illumination/irradiation of a human eye according to at least one of the preceding claims, wherein the determined data are stored for recording, documentation and evaluation.

17. Method for the illumination/irradiation of a human eye according to at least one of the preceding claims, wherein the evaluation results are documented by the output unit (7).

18. Method for the illumination/irradiation of a human eye according to at least one of the preceding claims, wherein static or dynamic irradiation patterns geared to the specific application can be generated for directed spatial and temporal sequences.

19. Method for the illumination/irradiation of a human eye according to at least one of the preceding claims, wherein parameters which are required for the intended purpose are determined on the basis of these data by the central control unit (6) and conveyed to the illumination source (2).

20. Method for the illumination/irradiation of a human eye according to at least one of the preceding claims, wherein the eyetracker checks whether or not the generated illumination patterns strike exactly the areas of the eye or of the photosensitive plastic to be irradiated during the irradiation.

21. Method for the illumination/irradiation of a human eye according to at least one of the preceding claims, wherein the generated illumination patterns track a possible eye movement by means of the eyetracker unit and the illumination unit.

22. Arrangement for the illumination/irradiation of a human eye according to at least one of the preceding claims, wherein a fixating mark is additionally projected on the eye to be treated or on the other eye which is not to be treated, this fixating mark being formed as a blinking light mark which is presented optically from infinity and is freely adjustable with respect to its attitude and position.

23. Method for the illumination/irradiation of a human eye according to at least one of the preceding claims, wherein the generated illumination pattern is used for the illumination of photosensitive plastics already implanted in the eye, in particular intercorneal rings.

24. Device for the illumination/irradiation of a human eye according to at least one of the preceding claims, wherein the irradiation unit which comprises the illumination source (2) and the optoelectronic component (3) is constructed as an independent unit which can be used as an accessory unit for various ophthalmological instruments such as slit lamps, fundus cameras, laser scanners and OPMI devices in order to generate illumination structures or irradiation structures with a defined dosage.

25. Device for illumination/irradiation according to at least one of the preceding claims, wherein the irradiation unit which comprises the illumination source (2) and the optoelectronic component (3) is constructed as an independent unit which can be used as an accessory unit for various dermatological irradiation instruments in order to generate illumination structures or irradiation structures with a defined dosage.